

EXHIBIT 1

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

TQ DELTA, LLC,

Plaintiff,

v.

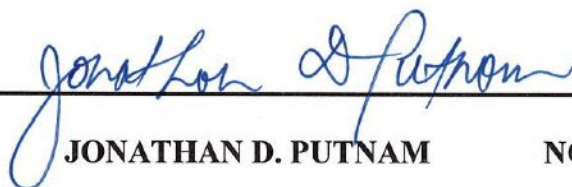
2WIRE, INC.,

Defendant.

C. A. No. 13-cv-1835-RGA

**HIGHLY CONFIDENTIAL –
OUTSIDE COUNSEL’S EYES ONLY**

Expert Report of Jonathan D. Putnam

 *Jonathan D. Putnam* *November 2, 2018*

JONATHAN D. PUTNAM **NOVEMBER 2, 2018**

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patents, which I derive independently, to the rates it has offered to the defendants and the rates agreed in TQ Delta’s license with Zhone, another equipment manufacturer.

23. As I explain below, the difference between the royalty rates computed in Column [c] and the rates observed in the Zhone license (Column [b]) is consistent with the maintained assumption that TQ Delta’s patents are valid and infringed, and the removal of any discount for potential invalidity and/or non-infringement that is to be expected in an actual license agreement. This difference does not reflect “discrimination,” but the different assumptions underlying the negotiation of licenses and the award of damages.
24. In short, as of the date that 2Wire began selling the accused products, damages for the Family 2 patents are equal to \$4.5 million, calculated by multiplying the royalty rate per unit per standard for Family 2 by the units sold that comply with the standard.⁸

⁸ This figure reflects units sold during the period from January 1, 2007-December 31, 2016, i.e., since the beginning of 2Wire’s production of accused product sales. I also have been asked by counsel for TQ Delta to compute damages for two alternative damages periods: a) since TQ Delta sent its first notice of infringement to 2Wire and b) since the filing of the complaint in this case. I express no opinion about which of these three periods is correct. Except for the number of units sold during each period, my damages calculations are unchanged. As shown in Exhibit 5, under the assumption that the damages period should begin on the date of TQ Delta’s letter to 2Wire (July 15, 2013), damages are \$3.6 million; under the assumption that the damages period should begin on the complaint filing date (November 4, 2013), damages are \$3.5 million; under the assumption that the damages period should proceed from the beginning of 2Wire’s production (January 1, 2007), damages are \$4.5 million.

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acquisition in October 2010.⁵¹ [REDACTED]

[REDACTED]

[REDACTED] I summarize 2Wire’s sale of accused products from 2007 to 2016 in

Exhibit 5, Schedule A.

C. SUMMARY OF 2WIRE AGREEMENTS

48. [REDACTED]

[REDACTED]

[REDACTED]

49. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁵¹ Pace plc, 2011 Annual Report & Accounts, March 6, 2012 (“Pace 2011 Annual Report”), p. 9.

⁵² *Id.* at p. 6.

⁵³ 2WIRE00051796-833. Also see Exhibit 7.